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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	)	
	)	
Amendment of Parts 2.106 and 25.202	)	
of the Commission's Rules to Permit	)	
Operation of NGSO FSS Systems	)	RM No. _____
Co-Frequency with GSO and	)	
Terrestrial Systems in the	)	
10.7-12.7 GHz, 12.75-13.25 GHz,	)	
13.75-14.5 GHz, and 17.3-17.8 GHz	)	
Bands, and to Establish Technical Rules	)	
Governing NGSO FSS Operations	)	
in these Bands	)	

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August 27, 1997

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OPPOSITION TO PETITION FOR RULEMAKING

TEMPO Satellite Inc. ("TEMPO"), a direct broadcast satellite ("DBS") licensee, hereby opposes the petition for rulemaking ("Petition") filed by SkyBridge L.L.C. ("SkyBridge") insofar as it requests the Commission to amend its rules to permit non-geostationary orbit ("NGSO") Fixed-Satellite Service ("FSS") systems to share frequencies with geostationary orbit ("GSO") DBS service.[1] TEMPO is licensed by the FCC to operate a DBS system on the frequencies 12.2-12.7 GHz (space to earth) and 17.3-17.8 GHz (earth to space), which are among the frequencies

[1] SkyBridge has also filed an application for authority to launch and operate an NGSO FSS system, which is referenced throughout its Petition. See Application of SkyBridge L.L.C. for Authority to Launch and Operate the SkyBridge System, filed February 28, 1997 ("Application").

SkyBridge has urged the FCC to designate for shared use by new NGSO FSS systems. Accordingly, TEMPO could be adversely affected by SkyBridge's proposed system.

I. SUMMARY.

SkyBridge has asked the Commission to institute a rulemaking for a highly speculative new NGSO satellite service, premised on an extraordinary -- but untested -- claim of an ability to share frequencies with GSO and terrestrial systems on a non-interfering basis. SkyBridge's Petition and Application present with broad strokes the outlines of its proposed NGSO FSS system, but fail to demonstrate how it would overcome the tremendous technical challenges involved in ensuring operation without adversely affecting DBS service. Accordingly, the Commission should not embark on a burdensome rulemaking or consider any changes to DBS allocations, which would divert scarce government and industry resources.

In fact, SkyBridge's proposed system, as outlined in its Petition, would create the potential for extensive interference to the service received by millions of small-dish DBS users across the country.[2] For over sixteen years, the FCC and industry have labored to make DBS service a success. The proposed co-frequency operations would jeopardize the substantial service gains made in DBS, and undermine the Commission's long-stated policies of promoting the development of the service. Indeed, given the number of existing and future consumers who could be adversely affected by the proposed service, the attempt to operate co-frequency with DBS likely represents the worst possible spectrum choice for SkyBridge's proposed operations.

[2] While TEMPO recognizes that the NGSO FSS system proposed by SkyBridge could affect other GSO and terrestrial systems, TEMPO limits its comments in this Opposition to the impact of SkyBridge's proposal on the provision of DBS service.

In addition, SkyBridge inaccurately characterizes the allocation status of the DBS frequencies. Significant changes to the rules would be required, and no legitimate public interest rationale has been offered to justify such modifications. Accordingly, the petitioner's proposals to change or "clarify" the U.S. Table of Allotments with respect to DBS frequencies should be rejected.

II. The Commission Should Not Waste Its Resources to Consider the Myriad Rule Changes Needed to Accommodate an Untested and Speculative Satellite System Using DBS Frequencies.

SkyBridge proposes to operate a NGSO system in the U.S. on a co-frequency basis with numerous existing and planned GSO satellite and terrestrial services in the 10.7-12.7 GHz, 12.75-13.25 GHz, 13.75-14.5 GHz, and 17.3-17.8 GHz bands. These bands include frequencies used by existing and pending DBS systems, including TEMPO. This unprecedented sharing of frequencies involving potentially millions of end users can be accomplished, according to SkyBridge, using only a "simple technique" for avoiding the interference that its proposed system could cause to DBS systems. Far from "simple," however, SkyBridge's proposed system is highly complex and, moreover, speculative and unsupported. In light of the serious technical uncertainties of the proposal, the Commission should not waste its scarce resources to conduct a burdensome rulemaking proceeding to consider the wide range of regulatory changes affecting DBS service called for in the Petition.

SkyBridge proposes to create a communications network that would link residential and business end-users to terrestrial networks via two-way satellite communications.[3] The "space

[3] See Petition, n.2.

segment" would consist of 64 NGSO low earth orbit ("LEO") satellites, which would be used to provide a "last mile" connection between end user terminals and regional processing centers, or "Gateways." Each Gateway would be connected to local servers and terrestrial networks, and would serve end users within a 220-mile radius "Gateway cell" through the satellite link. SkyBridge estimates that its system would require a total of 387 such regional Gateways to achieve its desired geographic coverage.[4] SkyBridge's proposed satellites would forward transmissions from the Gateways to the end user terminals (the "forward links") and from the end users back to the Gateways (the "return links").[5] Forward links would use, inter alia, frequencies in the 12.2-12.7 GHz range, which are currently used for DBS (space to earth) operations. Return links would operate, inter alia, on 17.3-17.8 GHz, which is also in the DBS (earth to space) frequency band.

SkyBridge states that each consumer would use a small "outdoor unit" -- either an active antenna or a mechanically-steered antenna -- to uplink and downlink signals, but provides few specific details concerning the operation of its "ubiquitous" user terminals. What is clear, however, is that unlike traditional FSS systems, SkyBridge proposes that an untold number of end users would be transmitting signals to its satellites using small dishes, so that the operations of each user terminal would have to be coordinated with DBS systems.

The proposed system would require a complex design and intricate coordination in order to ensure continuous, uninterrupted service to all Gateways and individual end users as SkyBridge's satellites move across the sky. SkyBridge proposes that each of the 64 NGSO

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[4] Application, p. 59.

[5] See Petition, p. 6; Application, pp. 20-21.

satellites would be equipped with up to 45 spot-beams, which would be independently steered to remain fixed with respect to the ground as the satellite moves, or shifted as necessary to address different Gateways and individual end-users. Because the satellites would be non-geostationary, the system would have to accommodate frequent transfers or "hand overs" of traffic from end user terminals and Gateways from one satellite to another. SkyBridge contends that it would pre-schedule and centrally plan all of the necessary hand overs, thereby instructing all components of the system to shift reception and transmission from one satellite to another. [6]

According to SkyBridge, its system would route signals to different satellites whenever transmissions to or from a particular satellite could cause interference with co-frequency GSO or terrestrial services. The SkyBridge system allegedly would accomplish this by identifying every geographic zone within which interference could occur, and incorporate these "non-operating zones" into the predetermined master spot-beam schedule.[7] As SkyBridge explains, "[a]s a Satellite pointing a spot-beam on a particular Gateway Cell approaches the non-operating zone for that Cell, User Terminal and Gateway Traffic will be handed over automatically by commands from the relevant Gateway earth station to a spot-beam on another Satellite."[8]

SkyBridge acknowledges that its "novel system architecture" represents an "entirely new generation of satellite systems."[9] Indeed, SkyBridge's proposed co-frequency sharing plan for GSO and NGSO systems is unprecedented and untested. The allegedly "simple technique" for

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[6] See Petition, p. 7.

[7] Id., p. 10.

[8] Id.

[9] Id., p. 6; Application, p. 2.

avoiding massive interference to DBS subscribers, moreover, is unsupported. SkyBridge's residential user terminals, which would be 50 centimeters or less in diameter, [10] would have to have the ability to track NGSO satellites and switch seamlessly from satellite to satellite as elevation angles, propagation factors and interference concerns demand -- all without causing any interference to co-frequency DBS operations. SkyBridge does not adequately explain how the system would accomplish such intricate maneuvering. Indeed, as a consequence of small user terminal antenna size, SkyBridge requests a waiver of Section 25.209 of the Commission's rules regarding earth station performance criteria. The request merely highlights the potential for SkyBridge to cause interference to existing systems on a scale that is unrivaled by any previously proposed satellite system.

In light of the speculative nature of SkyBridge's system and the high potential for interference, the Commission should dismiss the Petition. The public interest would not be served by diverting scarce Commission resources to consider the numerous rule changes, waivers and clarifications requested in the Petition and Application to allow spectrum sharing operations on DBS frequencies.

Moreover, consideration of the Petition would be contrary to the Commission's recent findings regarding spectrum allocation for GSO and NGSO services. For example, in the Ka-band proceeding, the FCC decided to separate GSO FSS and NGSO FSS systems into discrete spectrum blocks.[11] Indeed, the Commission concluded that spectrum should be set aside for

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[10] Application, p. 60.

[11] See Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, 11

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NGSO FSS systems on a "primary, non-shared basis" to accommodate those systems that involve ubiquitous end user terminals.[12] The FCC reached this conclusion on the basis of "[v]arious technical analyses, submitted to the Commission and to industry preparatory groups for WRC-95, [which] demonstrated that the ubiquitous deployment of user terminals for a NGSO/FSS system . . . will receive and cause unacceptable amounts of interference to other satellite users in the frequency band."[13] In addition, the FCC has indicated that it will not propose spectrum-sharing between GSO and NGSO FSS systems at the ITU 1997 World Administrative Radio Conference ("WARC").[14]

SkyBridge does not justify departing from these rational policy decisions. The complexity of the untested SkyBridge proposal merely highlights the wisdom of the FCC's decision not to advocate spectrum sharing between GSO and NGSO systems. Indeed, given the obvious public interest benefits of promoting existing services like DBS, which would inevitably bear the burden of coordinating with SkyBridge's system, the Commission should not initiate such a stark and unnecessary departure from its allocation policies.

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FCC Rcd. 19005, 19018-23 (1996) (First Report and Order) (designating 28.35-28.60 GHz for GSO/FSS systems and 28.60-29.1 GHz for NGSO/FSS systems).

[12] Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, 11 FCC Rcd. 53, 74 (1995) (Third NPRM and Supplemental Tentative Decision).

[13] Id.

[14] See Communications Daily, Aug. 11, 1997.

III. The FCC Should Not Consider Authorizing a Hypothetical Service at the Risk of Seriously Disrupting Existing DBS Service Providers and Their Consumers.

Initiating a rulemaking proceeding to consider authorizing a new consumer-oriented satellite service in the frequency ranges 12.2-12.7 and 17.3-17.8 GHz would be contrary to sound spectrum management policies and the Commission's long-stated goal of promoting the development of DBS. In its order allocating this spectrum for DBS in the United States, the FCC acknowledged that DBS service could produce a number of substantial public interest benefits, including improved service to remote areas, greater program variety, technological innovation, and expanded non-entertainment services.[15] The Commission also recently reiterated its commitment to "promoting this service as an important competitor in the MVPD market" in the 1995 auction order.[16]

In the past few years, DBS has begun to emerge as a viable competitor in the video programming market, offering a wide variety of services delivered digitally to small pizza-sized dishes for laser-disc quality images and compact-disc quality sound. Millions of households have subscribed to these services, and a number of new DBS services will be brought to the market over the next few years. Indeed, TEMPO recently launched its satellite, and preparations are underway for a new DBS service to begin. The SkyBridge proposal represents an

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[15] See Inquiry Into the Development of Regulatory Policy in Regard to Direct Broadcast Satellites, 51 RR 2d 1341, 1346 ("1982 DBS Order").

[16] Revision of Rules and Policies for the Direct Broadcast Satellite Service, 11 FCC Rcd 9712, 9718 (1995) ("1995 Auction Order").

unnecessary detour from the goal of ensuring the timely development and deployment of a full complement of DBS systems across the United States.[17]

SkyBridge's proposal to operate ubiquitous end user terminals co-frequency with millions of small-dish DBS receivers could seriously degrade the quality of video services. SkyBridge offers no plausible justification for asking DBS operators and their millions of customers to assume the cost, burden and risk of accommodating such a speculative new service. Given the extent of distribution of DBS service and the nature of customer receive equipment, the proposal to operate on DBS frequencies is likely the worst spectrum choice that SkyBridge could offer.[18] It is clearly contrary to the public interest for the FCC to contemplate a new system which so obviously threatens to disrupt the burgeoning DBS service.

IV. The Table of Allotments Regarding DBS Frequencies Should Not Be Modified.

To accommodate its proposal, SkyBridge asks the FCC to "clarify" that NGSO FSS systems can be licensed in the 12.2-12.7 GHz band on a non-interfering basis without any changes to the Table of Allotments. SkyBridge also asks the Commission to amend Sections 2.106 and 25.202 of its rules to allocate 17.3-17.8 GHz to FSS (earth to space) for use by NGSO

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[17] Consideration of the Petition also would ignore the history of DBS spectrum allocation. The specific frequency assignments by the ITU for DBS was the result of a significant international effort over a period of many years to dedicate spectrum for this promising service, culminating in the RARC-83 conference. Also, in allocating spectrum for DBS, the Commission required terrestrial microwave services to migrate out of these frequencies to avoid any possibility of interference with DBS service. See 1982 DBS Order at 1359-1362. SkyBridge has presented no reasonable justification for so clearly undermining this effort by opening the DBS frequencies to shared use and creating a substantial risk of interference.

[18] Moreover, the Petition does not explain why the use of DBS frequencies is necessary or even desirable for its proposed service.

FSS systems co-frequency with GSO (including BSS) and terrestrial services. For the reasons stated above, the FCC should not alter its Table of Allotments to permit licensing of NGSO FSS systems in the frequencies assigned to DBS downlink (12.2-12.7 GHz) and DBS uplink (17.3-17.8 GHz).

Moreover, SkyBridge incorrectly asserts that no changes are needed to the FCC's Table of Allotments for the 12.2-12.7 GHz band to allow the licensing of NGSO systems. Citing footnote NG139 to Section 1.206, SkyBridge contends that the existing allotment may accommodate its system because the FCC's rules allow "FSS [to be] authorized in this band 'subject to the condition that adjustments in certain system design or technical parameters may become necessary during the systems' lifetime.'"[19] Neither footnote NG139, nor the main Table of Allotments, however, designates this frequency range for FSS. Rather, Section 2.106 allocates the band only for the "fixed" and "broadcast satellite" services. The NGSO FSS system proposed by SkyBridge is not a "fixed" service -- i.e. "[a] radiocommunication service between specified fixed points."[20] The SkyBridge system also does not qualify as a "broadcast satellite" service, which the FCC has stated is "a radiocommunication service in which signals from earth are retransmitted by high power, *geostationary* satellites for direct reception by small, inexpensive earth terminals."[21]

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[19] Petition, p. 15, citing to 47 C.F.R. § 2.106, footnote NG139.

[20] See 47 C.F.R. § 2.1. Footnote 844 to Section 2.106 requires "existing and future terrestrial radiocommunication services" to avoid "harmful interference to the space services operating in conformity with" the Region 2 BSS Plan.

[21] 1982 DBS Order at 1343 n.1; see also 1995 Auction Order at 9717 ("the terms 'DBS service' and 'BSS service' are interchangeable"). Footnote NG 139 merely states that BSS services and *fixed* services, which were co-frequency, could be licensed in the 12.2-12.7 GHz band pending

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Moreover, SkyBridge acknowledges that ITU Resolution 506 "precludes NGSO operation" in the 12.2-12.7 GHz band.[22] In light of the Commission's pronouncements that it will not seek co-frequency allocations for GSO and NGSO, it is highly unlikely that Resolution 506 will be modified for Region 2 in the foreseeable future. As a result, there is no legitimate reason why the FCC should consider such changes domestically.

SkyBridge also mischaracterizes the U.S. allocation for the 17.3-17.8 GHz band. SkyBridge states that 17.3-17.8 GHz is internationally, but not domestically, allocated for FSS (earth to space).[23] Section 2.106, however, allocates 17.3-17.7 GHz for fixed-satellite (earth to space), and 17.7-17.8 GHz for fixed service, fixed-satellite (space to earth) (earth to space), and mobile service.[24] Footnote US271 requires, further, that "[t]he use of the band 17.3-17.8 GHz by the fixed-satellite service (earth-to-space) is limited to feeder links for broadcasting-satellite service."[25]

In sum, apart from mischaracterizing the Table of Allotments, SkyBridge advances no legitimate reason why the Table should be modified to permit any NGSO service to be licensed in the 12.2-12.7 GHz and 17.3-17.8 GHz bands. Given the residential and consumer orientation

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adoption of specific rules in the 1983 Regional Administrative Radio Conference.

[22] Petition, p. 9 n.14.

[23] Id., p. 13.

[24] 47 C.F.R. § 2.106 (Table of Allotments).

[25] Id., n.US271.

of DBS service, SkyBridge does not satisfy its heavy burden of demonstrating why a rapidly growing service should be jeopardized to accommodate its plans.

V. CONCLUSION

SkyBridge fails to justify use of the Commission's resources to conduct a burdensome rulemaking proceeding to adopt rules that would allow the licensing of an ill-defined, untested and speculative service to operate co-frequency with DBS. The proposal does not demonstrate how the NGSO system with "ubiquitous" end terminals could operate on an interference-free basis with GSO DBS systems and adequately protect the millions of small-dish DBS users. The request also is contrary to the Commission's spectrum management policies. Accordingly, the Commission should dismiss SkyBridge's Petition for Rulemaking insofar as it requests modification of the allotments for frequencies used in the DBS service.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of August, 1997, I caused copies of the foregoing "Opposition to Petition for Rulemaking" to be mailed via first-class postage prepaid mail to the following:

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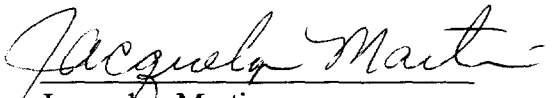

Jacquelyn Martin